

Claims

- [c1] 1. A color adjustment device for a plasma display panel, comprising:
a look up table, wherein the look up table stores a plurality of gray scale data, selects a data from the plurality of gray scale data according to a received gray scale input value, then outputs the selected gray scale data; and
an error diffusion circuit, receiving the gray scale data output from the look up table to perform an error adjustment.
- [c2] 2. The color adjustment device for the plasma display panel of claim 1, wherein the error diffusion circuit comprises:
an error value provision device, providing an error value;
an adder, adding the gray scale data to the error value for performing an add operation, and outputting a first data that is obtained from the add operation;
an operation and discriminance unit, receiving the first data, dividing the first data by a predetermined value to obtain a quotient, and outputting an integer portion of the quotient;
a multiplier, multiplying the integer portion of the quotient by the predetermined value and outputting a result value from the multiplication; and
a subtractor, receiving an output from the multiplier, subtracting the first data from the output of the multiplier, providing a second data that is obtained from the subtraction to the error value provision device.
- [c3] 3. The color adjustment device for the plasma display panel of claim 2, wherein the error value provision device further comprises:
a memory device, storing the second data provided by the subtractor, and outputting a portion of data that corresponds to a pixel related to a pixel to be displayed from the data that is stored; and
a weighting element, performing a weighting operation onto the data output from the memory device to obtain the error value, providing the error value to the adder.
- [c4] 4. A color adjustment method for a plasma display panel, comprising the steps of:
receiving a gray scale input value that is within a first range;

converting the gray scale input value into a gray scale data that is greater than the gray scale input value, moreover the gray scale data is within a second range; and

displaying the gray scale data as a brightness that is within a third range by using an error diffusion method, wherein the number of integers in the third range is less than the number of integers in the second range.

- [c5] 5. The color adjustment method for the plasma display panel of claim 4, wherein the step of converting the gray scale input value into the gray scale data further comprises:
adding the gray scale input value to a predetermined value to obtain the gray scale data.
- [c6] 6. The color adjustment method for the plasma display panel of claim 4, wherein the step of converting the gray scale input value into the gray scale data further comprises:
providing a look up table, querying the gray scale data that corresponds to the gray scale input value from the look up table.
- [c7] 7. The color adjustment method for the plasma display panel of claim 4, wherein a maximum integer of the third range is an integer portion of a quotient from a maximum integer of the second range divided by a predetermined value.
- [c8] 8. The color adjustment method for the plasma display panel of claim 4, wherein the step of displaying the gray scale data as the brightness that is within the third range by using the error diffusion method further comprises:
obtaining an error value after an error store value of a contiguous pixel multiplied by a weighting value;
dividing a value of the result of adding the gray scale data to the error value by a predetermined value, and obtaining an integer portion of a quotient from the division operation;
displaying the brightness with the integer portion on a current pixel;
subtracting a value of the result of the integer portion multiplied by the predetermined value from the gray scale data, storing a value obtained from the

subtraction operation; and

using the value as the error store value of the current pixel.

[c9] 9. A color adjustment method for a plasma display panel, comprising the steps of:

receiving a gray scale input value that is an integer;

converting the gray scale input value into a corresponding gray scale data; and

adjusting a brightness display according to the gray scale data;

wherein, the gray scale input value has a one-to-one corresponding relationship to the gray scale data, moreover if a range that gray scale data appears in comprises N integers and a brightness range to be adjusted comprises M integers, then $N > M$.

[c10] 10. The color adjustment method for the plasma display panel of claim 9, wherein the step of adjusting the brightness display according to the gray scale data further comprises:

obtaining an error value after an error store value of a contiguous pixel is multiplied by a weighting value;

dividing a value of the result of adding the gray scale data to the error value by a predetermined value, and obtaining an integer portion of a quotient from the division operation;

displaying the brightness with the integer portion on a current pixel;

subtracting a value of the result of the integer portion multiplied by the predetermined value from the gray scale data, storing a value obtained from the subtraction operation; and

using the value as the error store value of the current pixel.

[c11] 11. The color adjustment method for the plasma display panel of claim 9, wherein the gray scale data is obtained from adding the gray scale input value to a first predetermined value.

[c12] 12. The color adjustment method for the plasma display panel of claim 11, wherein the gray scale data is obtained from a query to a look up table according to the gray scale input value.

[c13] 13. The color adjustment method for the plasma display panel of claim 12, wherein the step of adjusting the brightness display according to the gray scale data further comprises:

- obtaining an error value after an error store value of a contiguous pixel is multiplied by a weighting value;
- dividing a value of the result of adding the gray scale data to the error value by a second predetermined value, and obtaining an integer portion of a quotient from the division operation;
- displaying the brightness with the integer portion on a current pixel;
- subtracting a value of the result of the integer portion multiplied by the second predetermined value from the gray scale data, storing a value obtained from the subtraction operation; and
- using the value as the error store value of the current pixel.